

**NON-IMAGING, COMPUTER ASSISTED NAVIGATION SYSTEM FOR HIP
REPLACEMENT SURGERY**

ABSTRACT OF THE DISCLOSURE

The invention includes: a locating system; a computer, interfaced to the locating system and interpreting the positions of tracked objects in a generic computer model of a patient's hip geometry; a software module, executable on the computer, which defines the patient's pelvic plane without reference to previously obtained radiological data, by locating at least three pelvic landmarks; and a pelvic tracking marker, fixable to the pelvic bone and trackable by the locating system, to track in real time the orientation of the defined pelvic plane. Preferably, the system also includes a femoral tracking marker, securely attachable to a femur of the patient by a non-penetrating ligature and trackable by the locating system to detect changes in leg length and femoral offset.